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| APPLICATION NO.               | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------|-------------|----------------------|---------------------|------------------|
| 10/786,965                    | 02/25/2004  | Dan Aharoni          | EMC-02-132CIP1      | 4123             |
| 24227                         | 7590        | 12/06/2007           | EXAMINER            |                  |
| EMC CORPORATION               |             |                      | PATEL, SHAMBHAVI K  |                  |
| OFFICE OF THE GENERAL COUNSEL |             |                      | ART UNIT            | PAPER NUMBER     |
| 176 SOUTH STREET              |             |                      | 2128                |                  |
| HOPKINTON, MA 01748           |             |                      |                     |                  |
| MAIL DATE                     |             | DELIVERY MODE        |                     |                  |
| 12/06/2007                    |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/786,965             | AHARONI ET AL.      |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Shambhavi Patel        | 2128                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 01 October 2007.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-21 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. This Office Action is in response to the Amendment/Remarks submitted 01 September 2007.
2. Claims 1-21 have been presented for examination.

**Response to Arguments**

3. Applicant's arguments filed 01 September 2007 have been fully considered but they are not persuasive. **Applicant submits**, on page 10 of the remarks, that Hoffecker does not disclose the newly amended limitation "...and optimizing individually front end and back end performance of each of said one or more data storage systems." **Examiner notes** that as per the newly issued 35 U.S.C. 112 rejection below, the term "front end and back end performance" is interpreted to be analogous to the "input/output activity" in the Hoffecker reference. Hoffecker teaches improving the input/output activity of the cache in **column 6 lines 46-column 7 lines 24** by monitoring the activity and determining which data sets should be moved to optimize the performance.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding **independent claims 1, 8 and 15**, the limitation "optimizing individually front end and back end performance of each of said one or more data storage systems" is indefinite. The specification does not define the terms "front end performance" and "back end performance", and it is unclear what parameters the performance is optimized for. The term "front end and back end performance" in the claim is interpreted to be analogous to the "input/output activity" in the Hoffecker reference. All other claims are rejected by virtue of their dependency.

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hoffecker (US Patent No. 5,325,505).**

**Regarding claims 1, 8, and 15:**

**Hoffecker discloses simulating performance on one or more data storage systems by:**

- a. receiving utilization data related to the utilization of one or more data storage systems (**column 7 lines 11-13**). The input/output activity of the data storage subsystem is measured over time to calculate the number of input and output operations (*utilization data*) to the dataset.
- b. receiving performance characteristics of work performed on the one or more data storage systems (**column 3 lines 25-29**). The prior art discloses using data from monitoring of the actual *performance of the data storage system* to dynamically analyze the performance of the data storage system.
- c. simulating performance on the one or more data storage systems using the utilization data and performance characteristics (**column 24 lines 36-42**) and that of a system including one or more data storage systems (**column 2 lines 44-46**)
- d. determining whether said performance of the one or more data storage systems or the system including said one or more data storage systems exceeds a corresponding level of

performance (**column 3 lines 30-35**), wherein said level of performance is associated with a workload (**column 3 lines 38-43 user workload**)

- e. indicating which of said one or more data storage systems are causing the excessive level of performance (**column 2 lines 35-38**)
- f. altering a configuration of at least one of said one or more data storage systems to sustain the simulated performance at a given level (**column 3 lines 38-48**), wherein said altering includes adding at least one additional data storage system to said one or more data storage systems causing the excessive level of performance (**column 2 lines 66-68; column 29 lines 51-68**) and optimizing individually front end and back end performance of each of said one or more data storage system (**column 6 lines 46-column 7 lines 24**).

Regarding **claim 8**, Hoffecker further discloses a system for performing the above, the system comprising:

- i. a computer having a memory and a display (**figure 1 computer 170**)
- ii. computer executable program code operating in memory (**figure 1**), wherein the computer-executable code is configured for execution of the above steps (**column 3 lines 10-16**)

Regarding **claim 15**, Hoffecker further discloses a program product including a computer readable medium with computer executable code configured for causing the above steps to occur (**column 3 lines 10-16**).

Regarding claims 2, 9, and 16:

Hoffecker discloses performing a storage management function (**column 7 lines 28-32**).

Regarding claims 3, 10, and 17:

**Hoffecker discloses** performing a performance modeling function (**column 8 lines 22-23, 42-55**).

**Regarding claims 4, 11, and 18:**

**Hoffecker discloses** performing a storage capacity planning function (**column 28 lines 41-45**).

**Regarding claims 5, 12, and 19:**

**Hoffecker discloses** performing the consolidation of one or more data storage systems that may be denominated as one or more source data storage systems into one other data system that may be denominated as a target data storage system (**column 9 lines 37-43**).

**Regarding claims 6, 13, and 20:**

**Hoffecker discloses** load balancing the source or target data system in accordance with information yielded from the step of simulating performance on the one or more data storage systems (**column 2 lines 36-43; column 3 lines 38-48**).

**Regarding claims 7, 14, and 21:**

**Hoffecker discloses** partially optimizing the source or target data system in accordance with information yielded from the step of simulating performance on the one or more data storage systems (**column 8 lines 42-48**).

**Conclusion**

6. All claims are rejected.
7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. **Examiner's Remarks:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shambhavi Patel whose telephone number is (571) 272-5877. The examiner can normally be reached on Monday-Friday, 8:00 am – 4:30 pm.

Art Unit: 2128

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP



KAMINI SHAH  
SUPERVISORY PATENT EXAMINER